

Enclosure 5

December 2006 Progress Report Document Federal Facility Survey Results



Enclosure 5
South Carolina's 8 hour Ozone Early Action Compact
Federal Facility Survey Results
December 2006

In May of 2006, the Department sent nine federal facilities located in South Carolina a survey aimed at gathering information on what environmental efforts are planned or currently taking place at federal facilities. So far six federal facilities have responded and the results of those surveys follow.

Aiken County Savannah River Site (SRS) This federal facility has made a commitment to convert its fleet to run on renewable fuels. In recent years the fleet has replaced more than 521 gasolinefueled vehicles with flexfuel, ethanol (E85) vehicles. To ensure adequate refueling infrastructure, two E85 stations were constructed on the site, and electronic card readers were programmed to ensure that flexfuel vehicles only be fueled with E85. Since the stations were opened in FY 2000, they have dispensed 356,943 gallons of ethanol fuel. In its pledge to use renewable fuels, SRS also began to operate all dieselpowered vehicles and stationary equipment (such as generators) on B20. Since the biodiesel program began in FY 2001, more than 480,000 gallons of B20 have been consumed by vehicles and equipment at Savannah River and this site generated 136 of the 158 biodieseluse credits earned by the Department in FY 2001.

http://www.eere.energy.gov/vehiclesandfuels/epact/pdfs/2001_doe_fleet_afv_report.pdf

SRS has long been a leader in alternative fuel use, using between 150,000 and 200,000 Gasoline Gallon Equivalents annually since FY 2001.

http://www.eere.energy.gov/vehiclesandfuels/epact/pdfs/2005_doe_afv_report.pdf

SRS has replaced almost 521 gasoline fueled vehicles with flexfuel, ethanol vehicles, including 136 vehicles (98 percent of covered acquisitions) in FY 2003 alone, to achieve 131 percent EPAAct compliance. This commitment has resulted in the fleet replacing over 30 percent of its FY 2003 covered petroleum use with E85.

http://www.eere.energy.gov/vehiclesandfuels/epact/pdfs/2003_doe_afv_report.pdf

Aiken County SRS U.S. Department of Energy (survey summary)

The SRS has an inhouse energy conservation program that implements measures to meet the energy efficiency goals established by the Department of Energy (DOE) and Executive Order.

There are currently 521 Alternative Fuel Vehicles (AFV) in the fleet. The total number of vehicles in the fleet is 1055. Four AFVs will be added to the fleet in FY06. SRS will maintain a relative proportion of AFVs in fleet in FY07 and FY08. There are two E85 stations at SRS. SRS used 292,000 gallons of E85 in 2005. The SRS is currently in the planning stages of a new project to replace the coal-fired AArea Powerhouse with a new, smaller plant that would use alternative fuel (wood products/biomass) for the primary boiler and fuel oil for the backup boiler. The benefits of the project are that it will greatly reduce emissions and meet all Maximum Achievable Control Technology (MACT) requirements that have been mandated by the EPA. Construction of the new plant is scheduled to start in February of 2007, with startup in April of 2008.

SRS has an extensive car pool network where employees can hook up electronically to find individuals seeking to car pool throughout the Aiken/Augusta area.

Energy Star programs have been implemented at SRS. Most Site computers are leased and the lease contract specifically states that all computers must be Energy Star compliant. In 2005, an initiative was implemented to obtain an Energy Star rating for a 3story 100,000 square foot building located onsite. This building was chosen because a building control system was already installed. Control system upgrades and enhancements were made so the building chilled water pumps and air handlers could be monitored and controlled. After monitoring metering and trending data system adjustments were made and the pumps and air handling units were placed in shutdown modes for 10hours each day without compromising personnel comfort. First year energy savings are estimated to be \$20,497.00 which will be validated in 2006 following the obtainment of 11months of system monitoring data.

SRS implemented two energy retrofit programs in 2005. Boiler controls for the #2 AArea boiler were upgraded from old pneumatic controls to new stateofheart multiloop digital controls. The installation for the new controls saves approximately \$200,000/year. In 2005, SRS implemented an ultraviolet lighting improvement project at the Central Sanitary Waste Treatment Facility that will reduce the number of UV lamps needed. UV lighting is used to disinfect the wastewater stream. The project will be completed in 2006 with savings of over \$10,000/year and a simple payback of about 4years.

SRS uses small photovoltaic arrays to power traffic signals, railroad crossing signals and environmental monitoring stations primarily for convenience.

A SRS Peak Alert Program checklist has been issued to all SRS employees during 2005. Peak alerts are announced during the summer months requesting energy conservation on those Peak Alert checklist items, e.g., adjusting thermostats and turning off lights.

Areas of the site are planted with species of trees best suited to grow in the soil being reforested. Trees are not being planted as part of the air quality program. It is estimated that SRS planted 800,000 trees during 2005.

Richland County Fort Jackson

Fort Jackson follows the Comprehensive Energy Conservation Policy 4207 (regulation) and the Installation Management Agency (IMA) Southeast Region Energy Program's Long Range Energy Management Plan <http://www.pnl.gov/imaseroenergy/>

Fort Jackson's fleet is 22.9 percent alternative fuel vehicles. There are 137 alternative fuel vehicles in the 598 vehicle fleet. Fort Jackson plans to purchase as many alternative fuel vehicles as they are able when they become available from the manufacturer. One E85 station is planned for installation in 2006 and work continues on bringing Biodiesel to the facility. There are future plans for diesel retrofitting of the bus system at this facility.

Energy Star programs include electronic devices and appliances as well as a Green Procurement program. Energy efficiency retrofitting programs include converting traffic lights to LED, installing geothermal HVAC systems in 1275 family housing units, a central energy plant cooling system, and demand limiting control systems. Fort Jackson will implement \$20mm of energy conservation projects within 3 years beginning with FY 2007.

"A 2.25Mgal CWS cooling system has been in operation at Central Energy Plant No. 2 at Fort Jackson since May 1996. The measured system performance includes a shift of 3,450 kW from onpeak to offpeak hours, resulting in annual electrical savings of \$430,000 during the 1996/97 year. Central Energy Plant No. 2 at Fort Jackson, designed by the U.S. Army Corps of Engineers, has been designated as a 1997 Federal Energy Saver Showcase facility."

http://www.erdcpub.usace.army.mil/pls/erdcpub/fact_sheet.CAPABILITY_PAGE?ps_capability_numb=46496&tmp_Main_Topic=&page=All

Fort Jackson plans to subscribe to the Enviroflash Ozone forecast. Mixed land use and landscaping requirements are currently practiced at Fort Jackson. They also have a very active reforestation and forest management program. Fort Jackson has upgraded the Palmetto Trail across the installation. They have installed and upgraded numerous walking trails on the post by paving paths and facilitated their use by installing picnic shelters and publishing maps.

Charleston County Naval Weapons Station Charleston

Air Quality: The Navy's goal is to maintain compliance with existing air quality standards. Emission sources are to be maintained in good operating condition to minimize the emission of air pollution. Alternative fuel sources are pursued when possible to reduce the overall emissions of pollutants.

Energy Conservation: The Navy's goal is to reduce energy consumption by 2

percent per year through 2010.

Currently the Naval Weapons Station has 34 E85/gas vehicles, 155 biodiesel, 21 CNG/gas, and 7 gas micro trucks. (These are small engine trucks used primarily on property with limited use away from immediate tenant command.) There are 384 total vehicles in the fleet. The Navy requires that alternative fuel equipment be purchased if available whenever new equipment is ordered. There is one biodiesel station at this facility and 96,000 gallons of B20 blend is used annually. Bus service is provided to tenant commands on an as needed basis. The buses are used in support of official duties.

New and replacement appliances are required to be Energy Star certified. Energy retrofits have included installation of: programmable thermostats, low water use toilets and showers, electronic ballasted fluorescent fixtures, interior storm windows, replacement of old AC units, vending machine motion sensors, relamping incandescent lights fixtures with fluorescent lamps, and adding ceiling insulation. Solar panels are used to power certain river navigation lights along the Cooper River. The power consumption is not measured.

The facility has an Energy Conservation Council that meets quarterly. Each building has a person designated as the Energy Monitor that is responsible to reduce energy consumption at their building.

This facility practices mixed land use and infilling. Remote grassy areas are cut on a limited basis. Trees are planted routinely. About 250 trees are planted annually for Tree City USA recertification. The facility added 0.45 miles of Hiking/biking/riding trails in the past three years.

Retrofitted lighting, HVAC, controls, motors, windows and water fixture in 53 buildings to improve energy use. Project began in 2000, and is complete.

The government plans to retrofit an additional 72 buildings pending completion of the Base Realignment and Closure (BRAC) process.

The payback period for implementation of the energy conservation is estimate at less than 10 years.

Energy conservation projects begun this year are:

- Install programmable thermostats and direct digital control in 22 buildings.
- Install Variable Frequency Drive controller and motor in administrative building.
- Install Air Curtains for rollup doors in a specific heated/cooled warehouse.

Charleston County Charleston Air Force Base

Uses \$60,000 gal/yr of Biodiesel at government fueling station for government diesel vehicles.

Energy Saving Performance Contract Initiated in FY04 – Renewable energy geothermal ground source heat pump systems and decentralization of Air force Base central steam plant. Removes base steam plant and replaces with smaller natural gas boilers and geothermal heat. Base steam plant currently major source of potential air emissions as is capable of burning No. 6 fuel oil. Changed the cleaner used to wash aircraft in Aircraft Washrack from PD680 (with fairly high VOC content) to new produce that is VOCfree to eliminate a major source of air pollution.

Tree City USA recipient for each of the last 10 years.

The Base added approximately 2.5 miles of jogging trails and upgraded their 0.5 mile nature trail with boardwalks and bike racks.

Sumter County Shaw Air Force Base (AFB)

This AFB's goal is to reduce energy consumption by 2 percent from FY03 baseline. There are currently 288 biodiesel Government Owned Vehicles and 21 E85 Government owned vehicles. There are also 28 E85 General Services Administration government leased vehicles. These vehicles are all used by civilian workers. E85 is not used because there is no available source of E85. Shaw AFB plans to purchase more E85 vehicles. Shaw AFB used 54,000 gallons of B20 in 2005. Shaw AFB provides a base shuttle bus for military personnel.

Shaw AFB, operating under the GSA Area Wide Utilities Energy Services Contract (UESC) and through its partnership with Energy Systems Group (ESG), has established a successful program to address energy reduction and operations improvements to over 158 buildings and more than 1.9 million square feet of facilities without impacting existing budgets and base operations.

In 2001, ESG was selected to design and implement energy efficiency upgrades to base facilities and infrastructure through lighting improvements, HVAC enhancements, steam system and boiler upgrades. This first phase of work provided over \$500,000 in annual energy savings that: Financed the entire project Improved energy security and efficiency Reduced both energy and O&M costs Established a comprehensive strategy that addressed future energy and equipment needs

In December 2005, Shaw AFB and ESG proceeded with its next phase of energy conservation work by implementing new lighting technologies and major mechanical system upgrades that will provide an additional \$200,000+ in annual energy savings. This current phase of work is scheduled to be completed in September 2006.

As an added benefit, ESG's program has helped Shaw AFB leverage energy efficiency to reduce environmental emissions and increase air quality without spending any additional funds. Based upon this successful partnership with ESG,

additional phases of energy conservation work are expected.

Shaw AFB will subscribe to the Ozone forecast. The base posts/distributes onsite awareness materials. The base has added 1.5 miles to the outdoor recreation trail and 1.25 miles to the trail at Chapel Pond.

Shaw AFB has reduced VOC's from 703 tons/yr in 1993 to 10 tons/yr in 2004.

Beaufort County Marine Air Corp Station Beaufort (MCAS)

Energy conservation goal for MCAS Beaufort was to reduce energy consumption per square foot to 35 percent below the FY85 baseline. The new goal is to reduce energy consumption even further to 20 percent below the FY2003 baseline.

MCAS Beaufort has 20 ethanol (E85) capable and 91 biodiesel vehicles out of a total of 265 vehicles in their fleet. There are no alternative fuels available for these vehicles. As vehicles are replaced as dictated in the GSA replacement cycle, alternative fuel vehicles are being purchased.

Energy Star programs have been implemented on the computer systems. 1236 water source heat pumps were installed in the military housing which has reduced energy consumption by 30 percent. Microturbins were installed to replace the central boiler plant. MCAS Beaufort installed new energy efficient chilled water plant and an energy management system for peak load reduction. There are also 38 solar powered security lights.

This facility currently subscribes to the Ozone forecast. Awareness materials are posted onsite through the building energy monitoring program which assigns personnel to daily monitor the energy conservation practices within every Air Station building. Awareness materials are distributed offsite during the Earth Day Fair.

Landscaping requirements include Zero Scape no extra watering required. Pedestrian walk trails were extended on Station during the past 3 years.

MCAS Beaufort follows Air Station Order (ASO) 11000.2A. This order details many energy saving techniques including:

- Walk when time, distance, weather conditions and purpose of the trip will allow.

- Do not allow engines to idle for longer than a minute, except in emergencies.

- Encourage car pools.